IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Per MANSSON et al.	Confirmation No: 3651
Appl. No.	: 10/517,321	
Filed	: August 23, 2005	
Title	: SYSTEM, DEVICE AND METHOD FOR DETECTION OF SEVERAL INDIVIDUAL ANALYTES IN A SOLUTION, AND A DISPOSABLE FLOW CELL FOR USE THEREIN	
TC/A.U.	: 1641	
Examiner	: U. Jung	
Docket No.:	: MANS3012/REF	
Customer No:	: 23364	

APPEAL BRIEF 37 CFR §41.37

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This brief on appeal is submitted without the required fee of $255.00 under § 41.20(b)(2) for a small entity as this fee has been previously paid. The period for filing the appeal brief has been extended to expire on January 16, 2010, by the filing herewith of a Petition for a One Month Extension of Time and payment of the required fee.

Any additional fees necessary for this appeal may be charged against the undersigned's Deposit Account No. 02-0200.

41.37 (c)(1)(i). REAL PARTY IN INTEREST

The real party in interest is the Assignee of record, BIOSENSOR APPLICATION SWEDEN AB

41.37 (c)(1)(ii). RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences with respect to the claimed invention which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal known to appellant, appellants' legal representative or assignee.

41.37 (c)(1)(iii). STATUS OF CLAIMS

This application contains 37 claims, claims 1-34 were subject to a restriction requirement. Claims 1-34 have been canceled from the application without prejudice or disclaimer, including those claims which are directed to non-elected subject matter. Claims 35, 36 and 37 are pending in the present application and have been finally rejected. Claims 35-37 are the claims on appeal.

41.37 (c)(1)(iv). STATUS OF AMENDMENTS

No amendment was filed after final rejection and the status of the claims is as finally rejected.

41.37 (c)(1)(v). SUMMARY OF CLAIMED SUBJECT MATTER

Claim 35 specifies a multiple piezoelectric crystal microbalance device comprising a connecting station (100,101) for receiving and individually operating an array of piezoelectric crystal microbalances and a plurality of individually detachable piezoelectric crystal microbalance flow-through cells for engaging with the connecting station (Page 1, lines 29, 30), wherein the connecting station comprises:

a connecting panel (112; 113) having an array of cell connecting receptors (118), each cell connecting receptor comprising a receptor connector portion (120) for automatic mating operative engagement with a cell connector portion (24) (Page 4, lines 17-20) of said piezoelectric crystal microbalance flow-through cell (10) (Page 5, lines 16 and 17) upon plugging said flow-through cell (10) into the connecting station (100,101), and wherein the receptor connector portion (120) comprises:

a pair of electric connecting ports (126, 128) for communication with a power and measurement means (130) for oscillating a piezoelectric crystal (50) carrying two electrodes (56,62) in a cell compartment (34) of one operatively engaged flow-through cell (10) and for measuring oscillating characteristics of the piezoelectric crystal (50) (Page 5, lines 19-22); and

a pair of fluid connecting ports (122, 124) for communication with flowing means (70) for uninterrupted flowing of a solution (75) and a test solution aliquot (83) to, and through, the cell compartment (34) (Page 5, lines 23 and 24);

wherein the individually operated piezoelectric crystal microbalances are electrostatically and electromagnetically shielded from each other (Page 5, lines 25-27); and

further comprising grounding means (108) for electrical grounding of the flow solution (75) and the test solution aliquot (83) to the cell compartment (34) of each of the flow-through cells (10) (Page 6, lines 3-6).

Claim 36 further defines the multiple piezoelectric crystal microbalance device according to claim 35, wherein the connecting station (100) comprises connection means (112) for serial interconnection of the flowing of the solution (75) and test

solution aliquot (83) to and through the cell compartment (34) of the individual flow-through cells (10) (Page 6, lines 26-28).

Claim 37 claims the multiple piezoelectric crystal microbalance device according to claim 35, wherein the connecting station (101) comprises connection means (113) for parallel connection of the flowing of the solution (75) and test solution aliquot (83) to and through the cell compartment (34) of the individual flow-through cells (10) (Page 9, lines 29-30).

41.37 (c)(1)(vi). GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether the rejection of claims 35-37 under 103(a) as being unpatentable over 1) Karube et al. (U.S. Patent No. 4,789,804, Dec. 6, 1988) (hereinafter "Karube") in view of 2) Gardhagen et al. (U.S. Patent No. 6,192,766 B1, Feb. 27, 2001) (hereinafter "Gardhagen"); 3) Thorne (U.S. Patent No. 4,154,795 May 15, 1979); 4) Takeuchi et al. (U.S. Patent No. 6,326,563, filed Sept. 22, 1999) (hereinafter "Takeuchi"); 5) Ricchio et al. (U.S. Patent No. 5,130,095, July 14, 1992) (hereinafter "Ricchio"), and constructing a formerly integral structure in various elements involves only routine skill in the art renders the claims prima facie obvious.

B. Whether the provisional obviousness-type double patenting rejection of claims 35-37 over claims 2-47 of copending Application 10/539,065 in view of Kawakami et al. (U.S. Patent No. 5,728,583, Mar. 17, 1998) (hereinafter "Kawakami"), Thorne (U.S. Patent No. 4,154,795, May 15, 1979), Ricchio (U.S. Patent No. 5,130,095, July 14, 1992), and constructing a formerly integral structure in various elements involves only routine skill in the art is proper.

41.37 (c)(1)(vii). ARGUMENT

CLAIM INTERPRETATION AND REQUIREMENTS FOR AN OBVIOUSNESS REJECTION

As noted in MPEP § 2141.02, ascertaining the differences between the prior art and the claims at issue requires interpreting the claim language and considering both the invention and the prior art reference as a whole. In determining the differences between the prior art and the claims, the question under 35 USC 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. It is further noted in this section that a patentable invention may lie in the discovery of the source of a problem even thought the remedy may be obvious once the source of the problem is identified. This is part of the subject matter as a whole which should always be considered in the determination of the obviousness of an invention under 35 USC 103.

Examples Of Basic Requirements of a Prima Facies Case of Obviousness

The appellant submits that the criteria set forth in the MPEP provides guidance in determining the issue of obviousness of the claims on appeal.

---SECTION---2143 Examples Of Basic Requirements of a Prima Facie Case of Obviousness

The Supreme Court in KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385, 1395-97 (2007) identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in Graham. The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.

SECTION---2143.03 All Claim Limitations Must Be Taught or Suggested

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re

Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Appellants note the Examiner's comments in the Final Rejection at the top of page 6, that it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art as the basis for obviousness. This statement is tantamount to the statement that the invention was well within the ordinary skill in the art which has been found to be insufficient. A statement that modifications of the prior art to meet the claimed invention would have been "'well within the ordinary skill of the art at the time the claimed invention was made'" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). **"'>[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396 quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).<

As discussed in MPEP § 2144, if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court. Examples directed to various common practices which the court has held normally require only ordinary skill in the art and hence are considered routine expedients are discussed below. If the applicant has demonstrated the criticality of a specific limitation, as in the present case, the individually detachable cells, it would not be appropriate to rely solely on case law as the rationale to support an obviousness rejection.

In this regard, the Final Rejection relies upon (Making Separable), In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (The claimed structure, a lipstick

holder with a removable cap, was fully met by the prior art except that in the prior art the cap is "press fitted" and therefore not manually removable. The court held that "if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose."). The facts with respect to the relationship of the prior art to the claimed invention in the present application are not sufficiently similar to those in the Dulberg decision for it to be controlling of obviousness of the presently claimed invention and reliance thereon is in error. Moreover, there is no reason suggested in the prior art to the claimed invention which includes a plurality of individually detachable microbalances in accordance with the claimed invention.

Applicant's argument that the relationship of the prior art to the claimed invention in the present application is not sufficiently similar to those in the *In re Dulberg* decision for it to be render obvious the presently claimed invention has been fully considered. However, this argument is not found persuasive because Applicant fails to provide specific reasons for stating that the facts with respect to the relationship of the prior art to the claimed invention in the present application are sufficiently similar to those in the *In re Dulberg* decision. The court has held that constructing a formerly integral structure in various separate elements normally require only ordinary skill in the art and hence are considered routine expedients.

As set forth above, Karube differs from the claimed invention in many ways and one is that Karube fails to teach that the plurality of piezoelectric crystal microbalance flow-through cells is detachable. Although the claimed structure of *In re Dulberg* (lipstick holder with a cap) is different from the currently claimed multiple piezoelectric crystal microbalance device, it is urged in the Final Rejection that the facts in *In re Dulberg* are sufficiently similar since the prior art teachings of Karube in view of Gardhagen teaches all the elements of multiple piezoelectric crystal microbalance device except that the plurality of piezoelectric crystal microbalance flow-through cells are detachable or separable. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the multiple piezoelectric crystal microbalance devices of Karube so that the plurality of piezoelectric crystal microbalance flow-through cells are detachable/removable, since it has been

held that constructing a formerly integral structure in various/separable elements involves only routine skill in the art. See MPEP §2144.04.

As further noted herein, the Karube reference does not describe or suggest a connecting station and a connecting panel for the piezoelectric cells in accordance with the claimed subject matter. The shaded portion of the annotated figure 7, in the Final Rejection, and labeled connecting panel is not discussed in the reference and does not appear to connect anything. The piezoelectric cell is connect directly to the oscillator circuit as shown in Figure 7 and Figure 15. Note also that there is no corresponding structure in Figure 16 for the shaded area of Figure 7 as shown in the final rejection. The structures are different and one skilled in the art would not find the presently claim invention is simply a structure of Karube, even in view of Gardhagen, which is in a plurality of elements of the Karube system.

A. THE OBVIOUSNESS REJECTION

In the Final Rejection, it is urged that Karube teaches a multiple piezoelectric crystal microbalance device (see entire document, particularly Figs. 1-3, 6, 7, 14 and 16). An annotated Figs. 6 and 7 of Karube are used in the final rejection to refer to different components of the claimed invention.

The device of Karube is said to include a connecting station (see annotated Fig. 7 in the final rejection) for receiving and an individually operating array of piezoelectric crystal microbalances (col. 9, lines 12-22). There is absolutely no description in Karube of a connecting station and the shaded area added to the drawing in the final rejection is in fact not described in the patent. The shaded area added to the Karube figure in the final rejection was drawn and described based on Applicants' specification and not based on an interpretation of the reference by one of ordinary skill in the art. This is impermissible hindsight for a rejection and presents no clear articulation of the reasons for the modification and description that the connecting station of Karube includes a connecting panel having an array of cell connecting receptors (see annotated Fig. 7 above), each cell connecting receptor comprising a receptor connector portion for automatic mating operative engagement

with a cell connector portion of a piezoelectric crystal microbalance flow-through cell (Fig. 6) upon plugging the flow through cell into the connecting station.

Applicants cannot find any connecting station described in the reference for receiving an individually operating an array of piezoelectric crystal microbalances in column 9, lines 12-22, where a system equipped with a plurality of piezoelectric crystal biosensors is suggested but not a device. Further, the analysis is suggested to be accelerated by using referential sensors. The reference to a connecting station in the rejection is based on the teaching in Applicants' specification, which even under KSR, may not be used as a teaching reference and one of ordinary skill in the art would not discern, from the entirety of the disclosure of Karube, a connecting station in accordance with the claimed invention. This is also true for the connecting panel. Where is this identified or discussed in the reference? Karube teaches that the lead wires from the cell(s) is/are connected directly to the oscillator circuit as clearly shown in figures 7 and 16.

Karube only teaches an individual cell with a single piezoelectric crystal biosensor or a single cell with a multiplicity of crystal biosensors. This is distinctly different from the presently claimed connecting panel having an array of cell connecting receptors, each cell connecting receptor comprising a receptor connector portion for automatic mating operative engagement with a cell connector portion of a piezoelectric crystal microbalance flow-through cell upon plugging the flow through cell into the connecting station. Further, the Figures 14, 15 and 16 in Karube suggest multiple piezoelectric crystal microbalances. However, it is clear that Karube does not suggest individually detachable piezoelectric crystal microbalance flow-through cells since Karube does not even suggest separate flow inlets and flow outlets from piezoelectric crystal microbalance flow-through cells - just a common inlet and a common outlet from one flow-trough cell having several piezoelectric crystal microbalance sensors.

It is further urged in the final rejection, that receptor connector portion comprises a pair of electric connection ports (reference elements 63 in Fig. 6). Elements 63 in Figure 6 are electrodes for attachment to the oscillator and not as urged in the rejection as a receptor connector portion of the connecting panel. The

final rejection refers to Fig. 16 and col. 5, lines 23-49 for oscillating a piezoelectric crystal (reference element 60 in Fig. 6) carrying electrodes (reference element 62 in Fig. 6 and col. 5, lines 27-30) in a cell compartment (reference element 64 in Fig. 6) of one operatively engaged flow-through cell and for measuring oscillating characteristics of the piezoelectric crystal; and a pair of fluid connecting ports (reference elements 65 in Fig. 6) for communication with flowing means for flowing a solution (col. 5, lines 39-49). Column 5, line 33 states that the lead wires attached to the oscillator circuit 66 and not to a connecting panel and clearly not suggesting the presently claimed invention.

Moreover, this clearly does not describe the connecting panel as required by the claims on appeal. Instead, the reference refers to a single cell. The multiple cell aspect described in the reference does not describe or suggest each cell connecting receptor comprising a receptor connector portion for automatic mating operative engagement with a cell connector portion of a connecting panel. The final rejection states that with respect to the limitation of "for communication with flowing means for uninterrupted flowing of a solution (75) and a test solution aliquot (83) to and through the cell compartment," a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The fluid connecting ports of Karube would be expected to provide uninterrupted flowing of a solution and a test solution aliquot through the cell compartment via flowing means. But again, this does not refer to or suggest the connecting panel with the receptor connector portion as required by the claims on appeal.

With respect to claim 36, Applicants agree that Karube teaches a multiple piezoelectric crystal microbalance, wherein the connecting station comprises connection means for serial interconnection for the flowing of the solution and test solution aliquot to and through the cell compartment of the individual cells (Fig. 16). Applicants further partially agree with the following admissions in the final rejection

of Karube's failure to teach and differences from the claimed subject matter as follows:

Although Karube's device does not include a connection station with a pair of fluid connecting ports, the device of Karube differs from the instant claims in that the pair of connecting ports provide flow for the plurality of piezoelectric crystal microbalance flow-through cells instead of having a pair of fluid connecting ports associated with each of the receptor connecting portion for individual piezoelectric crystal microbalance flow-through cells.

Karube further fails to teach a multiple piezoelectric crystal microbalance device, wherein the individually operated piezoelectric crystal microbalances are electrostatically and electromagnetically shielded from each other and further comprising grounding means for electrical grounding of the flow solution and the test solution aliquot to the cell compartment of each of the flow-through cell. The current specification discloses that electrostatic and electromagnetic shielding can be provided by enclosing an individually operated piezoelectric crystal microbalance with a metal (p. 14, lines 6-10).

In addition, Karube differs from the claimed invention in that Karube fails to teach that the plurality of piezoelectric crystal microbalance flow-through cells is individually detachable.

With respect to claims 35 and 37, Gardhagen teaches that a piezoelectric determination of analytes using biosensor flow cells (see entire document), particularly col. 5, lines 15-30). Gardhagen further teaches a multisensory system such as parallel biosensor flow cells can be arranged to have an array of flow cells having inlets and outlets (col. 5, lines 32-36).

Thorne teaches a microtitration plates with wells, which are individually removable/detachable (see entire document, particularly col. 1, lines 19-59). Plates with integrated wells lack versatility (col. 1, lines 19-21). Individually removable wells can be pretreated with different test combinations for different assays. Further, the removable wells enable the tray to be made of a less expensive material than that of the wells, thereby decreasing its expense as compared with those plates with integrated wells.

Takeuchi teaches a method of shielding by coating piezoelectric element with a conductive material such as a metal (see entire document, particularly col. 17, lines 29-35). A shield layer consisting of a conductive material reduces external electromagnetic noise and improves measurement sensitivity of the piezoelectric element (col. 6, lines 5-9).

Ricchio teaches a flow cell having a solution grounding means on the inlet line for the sample adjacent to the entrance to the flow cell of fluid thereby minimizing electronic noise (see entire document, particularly, Abstract).

Therefore, it is urged in the Final Rejection that it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to modify the device of Karube to have individual flow cells with a pair of fluid connecting ports (inlet and outlet) as taught by Gardhagen in order to allow parallel flow to the plurality of piezoelectric crystal microbalance flow-through cells. The parallel flow configuration is advantageous since the parallel flow configuration allows simultaneous processing of multiple test samples with a reasonable expectation of success. However, the teachings of this reference does not overcome the deficiencies of the primary reference as discussed above. Moreover, Karube already describes a cell having a plurality of biosensors as shown in Figures 14 and 16. There is no reason to substitute single cells of Gardhagen in the cell 144 of Karube and even if it was, there is no suggestion of the connecting station or panel required by the claims on appeal. Also, the sensors are connected directly to the oscillator circuit of Karube and not to the panel.

Gårdhagen suggests a multisensor system where biosensor flow cells can be arranged after one another so that the outlet flow from one sensor unit is sent to the inlet of a next sensor unit or the fluid sample is divided and charged to the sensor units in parallel. The change of quartz crystal is suggested in column 5, lines 27, 28. There is no suggestion of replacing a flow-through cell comprising such a quartz crystal with a ready–to-use flow-through cell as in the current invention where several detachable flow-through cells are required.

Thorne is concerned with microtitration plates with wells which has nothing to do with a multiple piezoelectric crystal microbalance device. There is no suggestion

in any of the cited references to develop a multiple piezoelectric crystal microbalance device as claimed in the current claims and certainly no motivation for a man of ordinary skill in the art to combine the cited references since a combination would not lead to the current invention. To Applicants knowledge, the current invention is the first to disclose a multiple piezoelectric crystal microbalance device being constructed to operate with individually detachable piezoelectric crystal microbalance flow-through cells and is not obvious from the prior art. Accordingly, it is most respectfully requested that this aspect of the rejection be withdraw.

In addition, it is urged in the final rejection that it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to modify the multiple piezoelectric crystal microbalance device of Karube so that the plurality of piezoelectric crystal microbalance flow-through cells are detachale/removable from its bases plate holding the array since Thorne teaches that arrays with individually removable wells/reaction cells are advantageous because of their versatility. Thorne teaches one of ordinary skill in the art with respect to microtitration plates or trays and are not piezoelectric crystal microbalances and there is no suggestion of modifying Karube on this teaching.

Further advantage of reducing expense by fabricating the arrays using less expensive material for the base/tray provides further motivation to combine teachings of Karube in view of Gardhagen and Thorne with a reasonable expectation of success. This is a mere conclusion and it is not based on any explanation for the combination and is not sustainable as a rejection. It is further urged in the final rejection that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the multiple piezoelectric crystal microbalance device of Karube in view of Gardhagen so that the plurality of piezoelectric crystal microbalance flow-through cells are detachable/separable, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *In re Dulberg,* 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is "press fitted" and therefore not manually removable. The court held that "if it were considered

desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.") See MPEP §2144.04.

As set forth above, Karube differs from the claimed invention in that Karube fails to teach that the plurality of piezoelectric crystal microbalance flow-through cells is detachable. Although the claimed structure of *In re Dulberg* (lipstick holder with a cap) is different from the currently claimed multiple piezoelectric crystal microbalance device, the facts in *In re Dulberg* the facts are not sufficiently similar due to the complexity of the present invention and that the prior art teachings of Karube in view of Gardhagen does not teach all the elements of multiple piezoelectric crystal microbalance device except that the plurality of piezoelectric crystal microbalance flow-through cells are detachable or separable. Therefore, it is not obvious to one having ordinary skill in the art at the time the invention was made to modify the multiple piezoelectric crystal microbalance device of Karube so that the plurality of piezoelectric crystal microbalance flow-through cells are detachable/removable, since it has been held that constructing a formerly integral structure in various/separable elements involves only routine skill in the art. See MPEP §2144.04. Accordingly, it is most respectfully requested that this aspect of the rejection be withdrawn or reversed on appeal.

Further, it is urged in the Final Rejection that it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to include in the multiple piezoelectric crystal microbalance device of Karube in view of Gardhagen and Thorne with a shield layer consisting of a conductive material such as metal as taught by Takeuchi in order to reduce external electromagnetic noise and improve measurement sensitivity of the piezoelectric element. The advantage of reducing external electromagnetic noise provides the motivation to combine teachings of Karube in view of Gardhagen and Thorne and Takeuchi with a reasonable expectation of success as the reduction in external electromagnetic noise would provide enhanced measurement sensitivity of the piezoelectric element in the multiple piezoelectric crystal microbalance devices. However, the Takeuchi piezoelectric sensor is resin coated and in this instance the insulating coated layer is

used which is different and does not suggest the presently claimed invention. Moreover, this teaching does not overcome the deficiencies in the primary references as discussed above. Accordingly, this rejection should be withdrawn or reversed on appeal.

Finally, it is urged in the Final Rejection that it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to employ the grounding means on the inlet line of the flow cell device as taught by Ricchio in the multiple piezoelectric crystal microbalance device of Karube in view of Gardhagen, Thorne, and Takeuchi in order to minimize electronic noise. The advantage of minimizing electronic noise provides the motivation to combine teachings of Karube in view of Gardhagen, Thorne, and Takeuchi and Ricchio et al. with a reasonable expectation of success. For the above reasons, these rejections should be withdrawn or reversed on appeal since the teachings of the secondary references do not overcome the deficiencies of the primary reference.

B. Provisional Obviousness Double Patenting Rejection

The Provisional Obviousness Double Patenting Rejection has been requested to be held in abeyance as there is no indication of allowable subject matter of the relevant claims in any application. Should the rejection of the claims on appeal be sustained, the obviousness double patenting rejection in this application is moot. In this regard, it should be noted that the applications are not commonly owned and there is a different inventive entity in each application. However, there are common inventors in each application. Moreover, from an inspection of the Image File Wrapper of 10/539,065, there is no corresponding obviousness-type double patenting rejection in the '065 application, contrary to MPEP §804. In addition, the present application has the earlier filing date and priority dates so it would be entitled to be first issued as a patent with a rejection of the copending application as set forth in the noted MPEP section.

The rejection of claims 35-37 as provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-47 of copending Application No. 10/539,065 in view of Kawakami et al. (U.S. Patent No. 5,728,583, Mar. 17, 1998) (hereinafter "Kawakami"), Thorne (U.S. Patent No. 4,154,795, May 15, 1979), Ricchio (U.S. Patent No. 5,130,095, July 14, 1992), and constructing a formerly integral structure in various elements involves only routine skill in the art has been carefully considered but should be reversed on appeal or further clarified.

The copending application is said to recite a detachable piezoelectric crystal microbalance comprising:

- a connecting panel (112, 113) having a cell connecting receptor (118), each receptor comprising a receptor connector portion (120) for mating operative engagement with a cell connector portion (24) of each piezoelectric crystal microbalance flow-through cell (10), wherein each connector portion comprises a pair of electric connecting ports (126, 128) for communication with a power and measurement means (130) for oscillating a piezoelectric crystal (50) carrying two electrodes (56, 62) in a cell compartment (34) of one operatively engaged flow-through cell (10) and for measuring oscillating characteristics of the piezoelectric crystal and
- a pair of fluid connecting ports (122, 124) for communication with flowing means for flowing a solution (75) and a test solution aliquot (83) to and through the cell compartment. However, there is no explanation as to how these terms correlate to the terms used in the claims in the copending application.

The provisional obviousness-type double patenting rejection of claims 35, 36 and 37 as being unpatentable over claims 2-47 of co-pending Application No. 10/539,065 in view of Kawakami, Thorne (U.S. Patent No. 4,154,795, May 15, 1979), Ricchio (U.S. Patent No. 5,130,095, July 14, 1992), and constructing a formerly integral structure in various elements involves only routine skill in the art is

not proper as it does not point out with the particularity necessary to determine the extent and basis of the rejection. It simply draws a conclusion without the necessary specificity required by an obviousness rejection under 35 USC 103(a) as discuss infra and which is a requirement of MPEP § 804. For example, claim 43 of the copending application relates to a piezoelectric sensor and there is no explanation of any correspondence in the claims to the rejected claims in the present application or the information provided above. In any case it is submitted that the claim subject matter is patentably distinct for the reasons discussed above for the obviousness rejection.

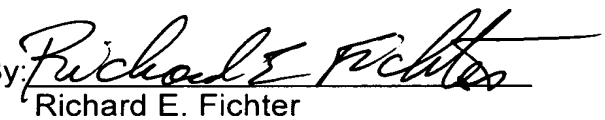
Moreover, for the purpose of this appeal, it appears from the Final Rejection that the claims on appeal are obvious over those in the '065 not withstanding the restriction requirement in the present application holding that such claims as those set forth in the '065 application represent patentably distinct inventions. Therefore, this rejection should be withdrawn or clarified to provide a clear indication of the reasons for the rejection so that a proper response may be filed as it is believed that the claims in the copending applications are patentably distinct.

CONCLUSION

In view of the above arguments, the rejection of the claims on appeal on the grounds of obviousness should not be sustained. The prior art rejection should be reversed and the application passed to issue. The provisional obviousness double patenting rejection should be withdrawn, and the present application allowed to issue and form a basis for a rejection of the copending application or other consistent appropriate action taken.

Respectfully submitted,

BACON & THOMAS, PLLC

By: 
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41.37 (c)(1)(viii) Claims appendix

35. A multiple piezoelectric crystal microbalance device comprising a connecting station (100,101) for receiving and individually operating an array of piezoelectric crystal microbalances and a plurality of individually detachable piezoelectric crystal microbalance flow-through cells for engaging with the connecting station, wherein the connecting station comprises:

a connecting panel (112; 113) having an array of cell connecting receptors (118), each cell connecting receptor comprising a receptor connector portion (120) for automatic mating operative engagement with a cell connector portion (24) of said piezoelectric crystal microbalance flow-through cell (10) upon plugging said flow-through cell (10) into the connecting station (100,101), and wherein the receptor connector portion (120) comprises:

a pair of electric connecting ports (126, 128) for communication with a power and measurement means (130) for oscillating a piezoelectric crystal (50) carrying two electrodes (56,62) in a cell compartment (34) of one operatively engaged flow-through cell (10) and for measuring oscillating characteristics of the piezoelectric crystal (50); and

a pair of fluid connecting ports (122, 124) for communication with flowing means (70) for uninterrupted flowing of a solution (75) and a test solution aliquot (83) to, and through, the cell compartment (34);

wherein the individually operated piezoelectric crystal microbalances are electrostatically and electromagnetically shielded from each other; and

further comprising grounding means (108) for electrical grounding of the flow solution (75) and the test solution aliquot (83) to the cell compartment (34) of each of the flow-through cells (10).

36. The multiple piezoelectric crystal microbalance device according to claim 35, wherein the connecting station (100) comprises connection means (112) for serial interconnection of the flowing of the solution (75) and test solution aliquot (83) to and through the cell compartment (34) of the individual flow-through cells (10).

37. The multiple piezoelectric crystal microbalance device according to claim 35, wherein the connecting station (101) comprises connection means (113) for parallel connection of the flowing of the solution (75) and test solution aliquot (83) to and through the cell compartment (34) of the individual flow-through cells (10).

41.37 (c)(1)(ix) Evidence appendix

None

41.37 (c)(1)(ix) Related proceedings appendix

None